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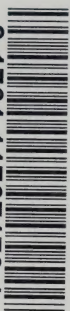
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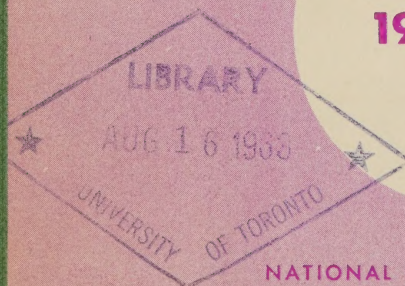
1962/63

Government
Publications


SUPPLY and DEMAND

UNIVERSITY GRADUATES

1962-63



NATIONAL EMPLOYMENT SERVICE
UNEMPLOYMENT INSURANCE COMMISSION
OTTAWA



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SUPPLY AND DEMAND

**UNIVERSITY GRADUATES
1962-63**

**Executive and Professional Section
National Employment Service
Ottawa**



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Executive and Professional Services
National Employment Service
Ottawa

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INTRODUCTION

This publication is prepared annually for distribution to undergraduate, graduating and graduate students at Canadian universities and colleges. The information contained herein will also be useful to the prospective employers of the students, to teachers, and to vocational counsellors.

The latest available information relating to the employment of the 1963 class of university graduates is presented, as well as significant trends in the university field related to employment. However, caution should be observed in using this material since it consists primarily of forecasts based on 1961 statistical information, as modified by preliminary data relating to the 1962 graduates. Notwithstanding these reservations, past editions of this booklet have shown these forecasts to be reasonably accurate guides.

Comments regarding the different groups of graduating students are arranged in sections alphabetically. These are preceded by a section on the 1962 estimated monthly starting salaries. The concluding section describes the role of the National Employment Service in the employment of university students. A tabulation of graduating classes by courses for the major universities and colleges is to be found in the centre of the booklet.

Graduations

The information presented in the centre table relates to graduating students affected greatly by active employer recruiting throughout the country. This table includes only the larger universities and colleges and does not cover the graduates of all courses, those obtaining graduate degrees, nor those who are completing degrees through part time study or summer courses. Considering all of these factors, it is expected that the number of 1963 graduates will exceed 30,000, compared with the 1962 class of 26,500. This 1962 figure is 15 per cent larger than that for 1961, a somewhat higher rate of increase than the corresponding rise in enrolments.

Substantial increases in graduating classes can be anticipated in the next few years as the full impact of large enrolment increases is felt. The 1961-62 enrolment of full time university students was 129,000, 13 per cent more than the 1960-61 total of 114,000. In turn, the 1960-61 enrolment was 12 per cent larger than that of the preceding year. If this trend continues, close to 150,000 full time university students will be enrolled in 1962-63.

Salaries

The table of estimated monthly starting salaries for those graduating in 1962 relates primarily to the larger national employers. Local employers frequently

pay salaries which are often lower or sometimes higher than these national rates, dependent upon the competitive conditions involved.

These starting salaries generally show modest increases over those reported for 1961 graduates. continuing the trend observed in past years. The most substantial increases noted are for the science disciplines of chemistry and biochemistry, mathematics, and physics. Starting salaries in these disciplines are four to five per cent higher than those offered in 1961. Graduates in commerce and business administration were offered two to three per cent more than during the preceding year, while a one to two per cent increase was noted in the engineering disciplines.

Trends

A number of trends have been observed in the university field which could have quite significant influences on the supply and demand of university graduates. It has been noted in recent years that the rate of increase in graduates from year to year is now higher than that noted for enrolments. This has been partially attributed to the fact that enrolments of part time students and enrolments at summer schools are increasing at a far faster rate than are the enrolments of full time students. Recent figures are not available, but there are indications of increases in the enrolment of part time and summer school students ranging upwards of twice the rate noted for full time students.

Other significant influences at work involve the fuller use of available university facilities. A number of universities in the United States function for the entire year, and starting with the 1962-63 academic year all universities in Florida operate full time for 12 months a year. Education authorities in Florida state that the ability to provide for all of the students who ought to attend college in Florida is contingent in part upon the attainment of fuller utilization of existing and projected institutional facilities.

Recent studies which have been made in Alberta indicate that some thought is being given there to a similar plan in that province. Elsewhere in Canada, Sir George Williams University and the University of Waterloo have operations of a similar nature. At the University of Waterloo the co-operative programme is in effect, and this involves a student spending a period of time in study, followed by an employment period related to the field of study. Dividing the students into separate groups enables the university to operate continuously. At other universities the extensive development of summer schools is achieving much the same objective.

If the 12-month year trend continues, universities and colleges will be able to handle larger enrolments with the same facilities and to turn out more graduates in a shorter length of time.

One of the more dramatic areas of expanding enrolments at Canadian universities is in the field of graduate studies. The number of students taking work at the Masters and Doctorate level is many times larger than it was a few years ago. At the same time it will be observed throughout this booklet that there is an increased emphasis on the part of employers on the recruitment of students possessing higher degrees.

One of the disciplines now omitted, but examined for many years in this booklet, is that of secretarial science. During the last few years the number of students taking studies in this area has decreased quite sharply. Waterloo University College recently announced that it was discontinuing studies in this field.

Acknowledgements

We would like to acknowledge the contributions of the many professional associations, individuals, institutions of higher education, and other organizations who have been of assistance to us in the production of this booklet. Wherever possible, reference to the sources of information is made in the text. Particular reference, however, must be made to the Education Division of the Dominion Bureau of Statistics and to the Pay Research Bureau of the Civil Service Commission. These two organizations were involved in the surveys which produced the statistical information contained in the following pages.

ESTIMATED MONTHLY STARTING SALARIES

1962 University Graduates

DISCIPLINE	BACHELORS \$ per month	MASTERS \$ per month	DOCTORS \$ per month
General Arts & Science (Pass Degree)	360	—	—
Honours Biological Sciences	395	470	620
Honours Chemistry & Biochemistry	408	465	638
Honours Economics & Political Science	375	460	—
Honours Geology	430	465	—
Honours Mathematics	390	478	595
Honours Mathematics & Physics	415	475	—
Honours Physics	413	477	595
Honours Psychology	360	450	—
Chemical Engineering	430	475	640
Civil Engineering	424	496	—
Electrical Engineering	423	477	—
Engineering Physics	420	477	590
Mechanical Engineering	430	473	—
Metallurgical Engineering	425	480	—
Mining Engineering	448	475	—
Petroleum Engineering	435	—	—
Agriculture	395	—	—
Forestry	400	—	—
Commerce & Business Administration	385	450	—
Commerce for CA Articles only	325	—	—
Education	435	550	—
Home Economics	355	—	—
Library Science	365	—	—
Medicine	377	—	—
Nursing	335	—	—
Pharmacy	435	—	—
Physiotherapy	350	—	—
Social Work	358	433	—

The information contained in the accompanying table of Estimated Monthly Starting Salaries, paid to the 1962 university graduates, was obtained from two sources. One of these was a survey of national employers active in the recruiting

of university students, while the second was a survey of personnel active in the placement of university students in employment. There are no figures in those instances where information was not available or was too meagre for reporting.

This salary table relates to 1962 graduates only. Although starting salaries can change significantly from year to year, these 1962 figures will, however, give some indication of what may be expected in the starting salaries for 1963 graduates.

PASS ARTS AND SCIENCE



The number of arts and science graduates with pass degrees, already constituting almost half of all university graduates, is continuing the accelerating growth rate observed in the 1961-62 edition of this booklet. The 1961 graduating class in pass arts and science was close to 10 per cent larger than the 1960 class and this was almost identical to the percentage increase

noted for the total number of graduates in all fields. The 1962 class was almost 20 per cent larger than that for the preceding year and showed a growth rate substantially more than that for the total of all graduates. In 1963, the number is expected to increase by more than 25 per cent and this is almost twice the growth rate predicted for all university graduates combined.

An increasing proportion of those graduating are proceeding to further studies in the professional fields, particularly in education, while a number do graduate work towards a Master's degree. Those available for immediate employment form only a portion of the graduating class and they are generally exposed to wide variety of employment opportunities.

There are indications of an increasing demand by major employers for these graduates, particularly in junior executive positions. However, in these positions there is some preference for those specializing in the social sciences. Social science graduates interested in employment directly related to their field of study will, however, find that opportunities are generally restricted to work of a very junior or assistant nature.

Students with a background in accounting and mathematics may find excellent opportunities in the computer field, both as operators and programmers. The National Machine Accountants Association reports that they are now in the midst of developing data processing courses at Canadian universities.

Pass Arts

Graduates in pass arts comprise the largest single group of university graduates.

These graduates may find employment in a large variety of trainee positions in government and business, leading to careers in management, administration and some professional areas.

Because most professions involve a mastery of a special field, education beyond the Bachelor's degree is becoming more and more a prerequisite for professional positions. Graduate study is generally open to only those who have shown superior academic ability, and a qualifying year is generally required before studying for a Master's degree. Some graduates use the Bachelor's degree as merely a stepping stone to a professional degree in such fields as medicine, law, library science, social work, etc. Pass arts students should try to integrate some campus activity or summer job with selected courses, so as to be better prepared for a career upon graduation. For example, a person interested in a career in social work could obtain valuable experience by working in summer camps.

The starting salaries for graduates have shown a modest increase over last year but are still among the lowest reported for any discipline. Graduates who have special qualifications or abilities e.g., sales, do receive substantially higher salaries than the average.

Pass Science

There are indications of a general improvement in employment opportunities for science students graduating with pass degrees. The Chemical Institute of Canada reports an increasing demand within the chemical industry for pass graduates with a strong major in chemistry. Previously, these positions were reserved primarily for honours chemistry graduates, but very few honours graduates are now available for employment in view of the trend toward proceeding to graduate study.

A substantial number of pass science graduates are now entering the teaching profession as secondary school teachers. In a number of provinces this involves as much as a year of further study before permission to teach is obtained. Employment opportunities are available as sales representatives in pharmaceutical and chemical firms for those interested in business careers. Sales potential as well as an academic background in the related field is generally required.

Continuing the trend begun in 1962, there will again be an increase in excess of 25 per cent in the 1963 graduating class. This contrasts sharply with

the average increase of six per cent during the preceding two years. The number of graduates in pass science has almost tripled in the past six years to approximately 2,000. This compares with an over-all increase of approximately 50 per cent for all graduates during the same period.

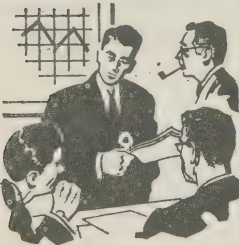
HONOURS ARTS AND SOCIAL SCIENCE

A seven per cent increase is expected in the number of graduates in honours arts in 1963 as compared to last year's rather large 20 per cent increase. In the social sciences, a small over-all increase of less than five per cent is anticipated. The graduating classes in economics and political science and in psychology will be about the same size as those in 1962. However, a substantial increase in the number of graduates in sociology is anticipated.

An honours arts degree is a fine basis for many fields of endeavour, including teaching, social work, and administrative jobs, while those with majors in English, history, or modern languages may find career opportunities as journalists. However, a Ph.D. or a Master's degree is usually required to be qualified professionally in most areas of arts study.

Graduates of honours arts courses are better qualified than pass arts students and the starting salaries are correspondingly higher.

Economics and Political Science



Only a modest increase in the number of graduates in economics and political science is anticipated in 1963 over the 1962 graduating class of approximately 200 students. The largest proportion of these graduates are specializing in economics rather than in political science. Indications by the major employers are that there is an increasing trend toward the employment of these graduates, the largest single employer being the federal government. Governmental employment includes all of the administrative functions as well as the field of economic research. The larger departments usually have a division carrying out studies, so that recommendations relating to particular problems can be prepared.

Employment opportunities exist at all three graduation levels and occur in governmental agencies, private industry and the academic field. Opportunities, however, in the academic field are increasingly being restricted to those with Doctorates, although a number of universities are employing those holding a Master's degree while further studies are being completed. It would appear that there are few career opportunities in the academic field for those who do not plan on obtaining a Doctorate.

Employment as economists can be found in both industry and government for those holding a Master's degree and for well qualified graduates at the Bachelor's level. Outside of the field of economics there are numerous employment opportunities in general administrative work, sales and related fields.

Starting salaries for graduates at the Bachelor level are quite good and compare very favourably with the other social science disciplines. Salaries are slightly better outside of government service at both the first and graduate degree levels.

Psychology

There is in Canada a shortage of professionally qualified psychologists, and indications are that the supply will not meet the expected demands for many years to come. Well-qualified graduates should, therefore, have no difficulty in locating suitable positions.

The largest number of psychologists is employed in universities, mental hospitals and clinics, while industry now employs an increasing number to deal with the selection, training and placement of employees, plus job analysis and evaluation. Employment opportunities as counselling psychologists at all levels of education are expanding rapidly because of the increased emphasis on guidance, counselling, and placement work.

The Canadian Psychological Association reports that a Master's degree is now generally regarded as the minimum requirement for employment, as 98 per cent of psychologists now have at least one graduate degree. Those interested in a career in psychology should be prepared to continue their academic training to the Ph.D. level.

The majority of psychologists are salaried employees with earnings largely determined by the place of employment. University and research work currently report the highest average income for psychologists.

Sociology

The 1963 graduating class in sociology will be approximately 40 per cent larger than the 1962 class.

The principal employers of graduates in this discipline are the universities and the various federal and provincial government agencies; some openings also exist with advertising agencies and the larger business organizations. The trend to-day is for students to continue their studies at graduate schools, making a graduate degree a virtual necessity for professional qualification.

Perhaps indicative of the growing importance of sociology are two recent developments. These are the establishment of a new journal by Laval University

entitled *Recherches Sociographiques* and the establishment of anthropology and sociology series at the Universities of British Columbia and Toronto by the Social Science Research Council of Canada.

ARCHITECTURE



There continues to be a substantial demand for qualified graduates in architecture. The Royal Architectural Institute of Canada reports that there is no unemployment in the profession, and that no difficulties are foreseen in the employment of new graduates in view of an anticipated period of active construction in 1962-63. Starting salaries are good for the well qualified graduate.

Two new schools of architecture were established during 1961-62, increasing the total number to seven. One of these is at Quebec City and the other at Halifax. However, it will be a number of years before these new schools substantially affect the size of graduating classes. In 1963 there will be a small drop in the number of graduates.

Generally the employment qualification in architecture is the Bachelor degree rather than any form of graduate training. Most employment opportunities can be directly related to the construction field (governmental, industrial and residential).

BIOLOGICAL SCIENCES

The biological sciences include botany, zoology, microbiology, biochemistry, bacteriology, entomology and all associated courses of study.

The present trend is for graduates in biology to continue their education at the graduate level. Approximately 65 per cent of the biologists in Canada now possess Master's or Doctor's degrees. Employment prospects are excellent for those who are so qualified.

There is a need for biological science graduates in industry, government and in various educational institutions. Governmental agencies at present employ close to one half of all biological scientists. Additional employment opportunities are expected, especially as developments continue in medical and agricultural research.

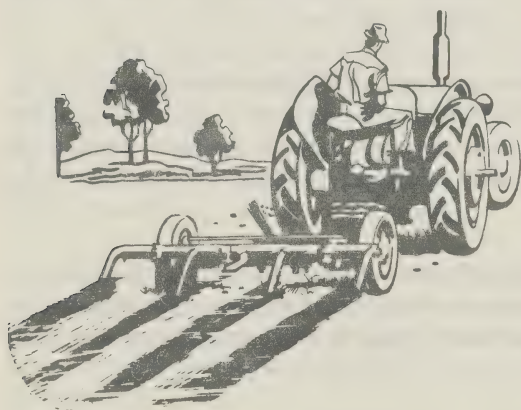
Microbiology is one of the more rapidly expanding biological science fields. Graduates in microbiology may find employment with universities, pharma-

ceutical firms and food companies, although governmental agencies continue to be the primary employers of such graduates.

The Canadian Society of Laboratory Technologists reports that there appears to have been an increase in demand for university graduates in hospital laboratories throughout Canada. This would apply primarily to graduates with specialization in bacteriology and biochemistry. The requirement is chiefly for persons with advanced degrees in these subjects but honours Bachelor graduates are sometimes employed in clinical laboratories without further training.

Continuing the trend observed in the past few years, there will be an increase of approximately 13 per cent in the number of graduates in the various disciplines composing the biological science field.

Agriculture



Scientific research, teaching, extension and promotion services, technical sales, inspection and control as well as farming - all offer fine opportunities for the new graduate. Almost one-third of the graduates are employed by industrial and commercial firms and about 10 per cent work in universities. However, approximately 25 per cent of the agricultural scientists are engaged in some facet of the teaching profession. For those inter-

ested in teaching at the university level or a career in the research field, graduate study is usually required.

The Agricultural Institute of Canada reports that the comparatively strong and excessive demand for Bachelor level agricultural graduates, particularly in the commercial-industrial field, is creating a serious shortage of students proceeding to the Master and Doctorate levels of study. As a result, too few candidates are available for positions calling for advanced training, especially in the research field.

A steady growth in demand for agricultural science graduates is expected in the coming years as the scientific approach in almost all areas of agriculture has become well established.

Continuing the trend noted in the past three years, there will again be a substantial increase in the number of graduates. The 1963 graduating class will be approximately 15 per cent larger than the 1962 graduating class.

Forestry

The increasing emphasis on scientific management, conservation and utilization, as exemplified by the formation of the Federal Department of Forestry, should lead to a greater demand for forestry graduates. For example, the number of positions in the Federal Government is expected to double in the next 10 years. Graduates may also find employment in the pulp and paper industry or with lumber companies. However, close to 70 per cent of forestry graduates find employment in the various governmental agencies.

As was the case in 1962, the 1963 graduating class will be about 10 per cent smaller than that for the preceding year.

COMMERCE AND BUSINESS ADMINISTRATION

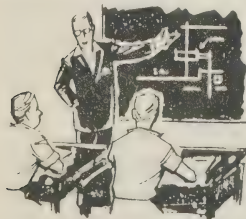


Continuing the trend observed last year, the 1963 graduating class will be approximately 11 per cent larger than the 1962 class. This 11 per cent increase can be partially attributed to the rapid expansion of business administration at Waterloo University College.

The accounting profession continues to absorb many graduates as employment opportunities consistently expand each year. Private industry, insurance companies, manufacturers and governmental agencies all have unfilled needs for accountants. There are excellent employment opportunities for graduates with C.A. firms as articling students, and it would appear that these employment opportunities far exceed the number of students available. Outside of the accounting field new graduates will find an increase in employment opportunities as sales representatives and sales trainees. Positions are also available in personnel work and advertising.

Starting salaries for the new graduates will be slightly higher in 1963 than in 1962 in the general employment field. The starting salaries for those articling for a C.A. degree, however, show signs of continuing to increase more rapidly than the general starting rates.

EDUCATION



The total enrolment at teachers' colleges and in faculties of education at the various universities exceeded 31,000 in the 1961-62 academic year. This represented an increase of 12.5 per cent over the previous year's total. Taken individually, the enrolment at teachers' colleges increased by 10 per cent, while an increase of 18

per cent was observed in the faculties of education. This continues the trend — noted in the last four years — towards a faster growth rate in the education faculties than in the teachers' colleges. If this trend continues, universities will eventually graduate more teachers than do the teachers' colleges. Because of the increasing number of better qualified graduating teachers, some school boards have raised their minimum qualifications, and have replaced those holding only marginal qualifications.

In recent years there has been considerable growth in enrolment in courses in the adult education field. The Canadian Association for Adult Education estimates that approximately 1,000,000 Canadians are now registered in such training programs, of a formal or informal type, with over 150,000 of these working through correspondence courses. This rapid growth has resulted in greater demands for adult education teachers and administrators. Indicative of this demand is the appointment by seven school boards in Nova Scotia of local administrators with special responsibilities for the organization and supervision of adult education services in their respective districts.

At the Canadian Conference on Education, held early in 1962, Canadian educators expressed the desire to see an upgrading of the professional status of teachers. To elevate the professional status of teaching, an upgrading of the minimum qualifications was considered essential. It was decided that these should include a university degree for both the elementary and secondary fields, and that there should be some degree of specialization. The delegates felt that the first certification as a teacher should be temporary or probationary, with permanent certification dependent upon at least two years of demonstrated successful teaching. The viewpoint was also endorsed that the level of remuneration must be such as to attract the best candidates to the teaching profession.

The viewpoints expressed by the conference are perhaps indicative of some of the changes in the education field which can be anticipated in the coming years.

Elementary

Normal schools and teachers' colleges continue to constitute the primary source of supply of elementary school teachers. However, an increasing number of college graduates are now seeking positions as teachers in elementary schools. It should be noted that the opportunities for advancement are greatly increased for the better qualified.

The supply now appears to be meeting the demand, and some departments of education have taken advantage of this to upgrade their entrance and certificate requirements. The Canadian Education Association reports that because of the increase in the supply of elementary school teachers, the provinces of British

Columbia, Alberta, and New Brunswick have extended their elementary teacher training period to two years beyond high school graduation.

Most of the larger universities, such as the University of British Columbia, the University of Alberta, and McGill University, now offer elementary teaching programs leading to Bachelor of Education degrees. Some proficiency in art and music is a definite asset at this level of teaching.

Secondary

At the secondary school level, indications are that with the increasing number of graduates entering the teaching profession the supply will soon be adequate to meet the demand. However, there is still a great need for those with specialist training.

Some educators are now predicting that in the next three to four years there will be an excessive supply of teachers in some provinces. This increasing supply of secondary school teachers has permitted certain school boards to upgrade their entrance requirements and to replace less qualified personnel.

The complexity of modern life, with its greater emphasis on skilled employment and higher education, is greatly increasing the demand for more guidance workers at the high school level. Indicative of these developments is the stronger emphasis on guidance as a field of specialized study. An example of this trend is the recent announcement by the University of New Brunswick of the introduction of a special certificate program in guidance, to be given there in the summer months. Recipients of certificates will be required to have at least three years of teaching experience, a licence, and several course credits in education, sociology and psychology.

The trend is toward all teachers at the secondary school level possessing degrees. Salaries vary from province to province, with a tendency toward higher salaries in a westerly direction.



University

Because of the rapid expansion of present universities and the creation of new institutions, the demand for qualified educators will increase greatly within the next 10 years. Dr. E. F. Sheffield, Research Officer of the Canadian Universities Foundation estimated the number of teaching and research staff at Canadian universities at 7,450 during the 1958-59 academic year. This was a

ESTIMATED GRADUATIONS BY DISCIPLINES (1962 and 1963)

University	Pass and General				Honours Arts and Social Science								Miscellaneous Courses																		
	Arts		Science		Econ. & Polit. Sc.		Psych.		Sociology		Other		Agriculture		Archtr.		Commerce & Bus. Admin.		Forestry		Household Science		Library Science		Pharmacy		Phys. & Occup. Therapy		Social Work		
	62	63	62	63	62	63	62	63	62	63	62	63	62	63	62	63	62	63	62	63	62	63	62	63	62	63	62	63	62	63	
Memorial	21	25	18	13	3	3	-	-	1	1	7	2	-	-	-	-	10	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Acadia	57	79	38	64	-	-	-	-	-	-	2	1	-	-	-	-	11	22	-	-	9	8	-	-	-	-	-	-	-	-	-
Dalhousie	77	92	48	75	2	2	2	3	-	-	7	9	-	-	-	-	20	32	-	-	-	-	-	-	15	21	-	-	19	12	
St F Xavier	112	98	35	50	-	-	-	-	-	-	-	-	-	-	-	-	39	33	-	-	14	9	-	-	-	-	-	-	-	-	
Mt. Allison	72	79	35	45	3	1	2	2	-	-	7	10	-	-	-	-	16	24	-	-	12	25	-	-	-	-	-	-	-	-	
U. N. B.	72	70	23	18	4	3	-	-	-	-	4	13	-	-	-	-	19	31	34	30	-	18	17	56	-	-	1	1	35	55	
McGill	210	219	180	211	24	19	9	12	6	2	35	41	46	59	20	15	49	80	-	-	-	-	-	-	-	-	-	-	-	-	
Sir Geo W.	160	155	78	87	-	-	-	-	-	-	-	-	-	-	-	-	62	81	-	-	-	-	-	-	-	-	-	-	-	-	
Montreal (a)	1466	1752	30	45	25	29	60	61	6	9	39	56	15	17	18	19	100	113	-	-	80	85	30	55	46	20	22	-	-	-	
Sherbrooke	100	103	-	-	-	-	-	-	13	11	-	-	13	16	-	-	188	173	40	26	23	21	34	-	21	15	-	-	46	20+	
Laval	985	1133	-	-	13	19	18	20	-	-	65	100	13	-	-	-	19	9	-	-	-	-	-	-	-	-	-	-	-	-	
Assumption	174	169	30	27	2	3	4	1	-	-	6	11	-	-	-	-	26	34	-	-	-	-	-	-	-	-	-	-	-	-	
Carleton (b)	111	167	54	51	5	3	-	-	-	1	7	7	-	-	-	-	11	25	-	-	-	-	-	-	-	-	-	-	-	-	
McMaster	121	125	44	50	2	5	4	5	-	-	29	54	-	-	-	-	12	21	-	-	-	-	-	-	-	-	-	-	-	-	
Queen's	286	275	-	-	14	10	4	6	-	-	6	66	51	-	-	-	110	100	-	-	-	-	-	-	-	-	-	-	25	30	
Ottawa	163	180	16	22	-	-	1	2	-	-	66	75	-	-	-	38	26	65	80	18	20	10	2	91	61	85	53	79	104	-	
Toronto	792	690	88	130	49	38	27	23	3	15	234	249	-	-	-	-	65	68	-	-	5	7	-	-	-	-	-	-	-	-	
Western	435	460	47	32	11	14	7	7	-	-	113	142	-	-	-	-	38	28	35	38	44	-	46	51	-	24	20	19	23	71	
Manitoba (c)	430	470	267	317	6	7	1	1	-	1	26	25	31	38	28	35	38	44	-	-	-	13	11	-	52	46	-	-	23	71	
Sask. (d)	413	467	34	43	8	12	3	1	-	-	-	-	65	78	-	-	51	70	-	-	-	27	34	-	77	55	-	19	-	-	
Alberta (e)	237	250	167	200	2	4	3	-	-	1	12	17	34	30	-	-	73	12	-	-	-	34	31	-	43	19	-	-	93	35+	
U.B.C. (f)	427	500	222	370	10	12	10	11	6	5	50	70	37	40	17	18	131	138	31	34	38	31	-	-	-	-	-	-	-	-	
Waterloo U.C	109	124	-	-	-	-	-	5	-	-	-	-	115	120	-	-	7	38	-	-	-	-	-	-	-	-	-	-	-	-	
O.A.C.	-	-	-	-	14	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	41	-	-	-	-	-	-	-	-	
Mt St Vinc.	21	21	5	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	8	-	-	-	-	-	-	-	-	
TOTALS:	7051	7703	1459	1854	197	201	155	160	35	52	775	933	356	398	121	113	1157	1269	123	110	363	380	233	-	348	307	93	144	393	177+	

- (a) University of Montreal estimates include Loyola College.
 (b) In engineering the actual field of graduation is not known at Carleton until the final year of the course.
 (c) University of Manitoba estimates include Brandon College and United College.
 (d) University of Saskatchewan estimates include the Regina campus.
 (e) University of Alberta estimates include the Calgary campus.
 (f) University of British Columbia estimates include Victoria College.

	Honours Science										Engineering and Applied Science									
	Biol. Sc	Chem.	Maths.	Maths. & Physics	Geology	Other	Geol.	Chem.	Civil	Elect.	Mech.	Metal.	Mining	Eng. Physics	Other					
	62	63	62	63	62	63	62	63	62	63	62	63	62	63	62					
Memorial	-	1	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acadia	3	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dalhousie	3	1	5	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
St F Xavier	-	-	-	2	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mt. Allison	1	3	4	4	3	4	1	1	-	-	-	-	-	-	-	-	-	-	-	-
U. N. B.	3	-	2	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
McGill	16	34	9	14	9	12	9	15	5	2	2	17	-	-	-	-	-	-	-	-
Montreal (a)	22	25	15	16	9	10	6	9	5	4	12	16	2	4	10	9	133	131	42	38
Sherbrooke	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Laval	6	6	5	26	4	4	9	8	-	-	9	14	3	2	4	11	51	42	19	22
Assumption	1	1	2	3	4	2	4	2	-	-	-	1	-	-	3	6	17	9	12	11
Carleton (b)	1	1	-	3	-	2	1	2	4	1	-	-	-	-	-	-	8	(b)	7	(b)
McMaster	3	2	10	11	7	10	-	2	11	7	25	-	-	-	7	7	-	4	10	9
Queen's	15	8	10	22	3	8	18	13	10	5	-	-	8	12	21	12	38	36	32	36
Ottawa	-	3	4	5	4	-	4	8	-	4	-	-	-	-	6	6	-	-	11	17
Toronto	10	13	10	22	-	-	49	66	7	1	34	38	11	6	48	52	68	52	69	67
Western	3	3	13	11	12	11	4	6	10	4	-	-	-	-	3	6	9	6	2	12
Manitoba (c)	3	4	10	11	6	5	10	13	6	7	4	6	1	-	-	-	55	46	45	47
Sask. (d)	5	4	5	9	5	5	7	6	-	-	5	12	10	8	15	9	65	50	30	45
Alberta (e)	3	1	10	6	3	9	7	15	5	6	6	11	-	-	37	25	72	63	84	43
U. B. C. (f)	20	30	21	31	5	8	25	20	10	5	-	13	12	12	26	24	42	38	52	51
O. A. C.	19	14	5	21	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-
U. of Waterloo	-	-	4	1	-	-	2	5	-	-	1	-	-	-	13	12	22	29	6	23
N. S. Tech.	-	-	-	-	-	-	-	-	-	-	-	13	7	39	60	32	47	23	42	7
R. M. C.	-	-	-	-	-	-	5	9	-	-	-	6	6	-	-	-	28	16	-	15
TOTALS:	137	154	148	221	77	92	168	208	66	41	94	167	47	44	241	213	779	690+	627	567+
			(4)		(5)												79	75	40	38
																	221	169+	35	73

(1) Includes some pass science at University of Sherbrooke,

Queen's and University of Toronto.

(2) Includes agricultural engineering at University of Saskatchewan.

(3) Includes industrial engineering at University of Toronto.

(4) Includes honours chemistry and physics.

(5) Includes honours physics at all universities and honours mathematics at University of Toronto.

NOTE: Dashes indicate either no graduating students or insufficient information.

Figures followed by a plus sign are minimum figures only.

ratio of students to teachers and research personnel of 12.7 to one. Assuming that this ratio remained constant, there were approximately 10,100 teaching and research personnel during the 1961-62 academic year. If the same ratio is to be maintained in the 1970-71 academic year, it will be necessary to increase this staff by another 16,000. Allowing for wastage and a possible further acceleration of enrolments, it would appear that approximately 20,000 persons will have to be added to the teaching and research staffs at universities during the next eight years.

Indications are that this demand will be met since enrolments in graduate courses are increasing more rapidly than those in undergraduate courses. We can therefore expect a substantial increase in the number of graduates at the Master's and Doctorate levels during the next few years.

The Dominion Bureau of Statistics reports that in the 1958-59 academic year, 42 per cent of college educators had Doctorates, 33 per cent had Master's degrees and 23 per cent had Baccalaureates or equivalent, plus a first professional degree. For those now entering university employment in teaching and research a Ph.D. is generally required. However, those with a Master's degree are often employed while they study for their Doctorate, and occasionally there are employment opportunities for Bachelor's graduates studying for their next degree.

Salaries vary from university to university and are generally good. However, in the Maritime provinces the salaries are slightly lower than in the rest of Canada.



ENGINEERING

Significant decreases in the expected number of graduates in chemical and civil engineering is the primary cause of the anticipated eight per cent over-all drop in the size of the 1963 class of graduating engineers. Other engineering disciplines will have approximately the same number of graduates as in 1962, while there will be a modest increase in the number of mechanical engineering graduates.

Two institutions, the University of Waterloo and Laval University, have reported rapidly rising enrolments in the engineering faculty while many of the larger Canadian universities are expecting yet smaller graduating classes in the next few years. The co-operative plan is in effect at the University of Waterloo, and indications are that this system could become a factor in increasing enrol-

ments in engineering as well as in other faculties. This plan integrates classroom experiences and practical work experience in industrial business, government or service-type work situations.

Graduates at the top of their class usually secure the more lucrative positions while those at the lower end may find that they must accept the less attractive offers and poorer geographical locations. Consulting, administrative and contracting engineering are amongst the highest paid fields for engineers. Other avenues of employment are in sales engineering, market analysis work and public utilities, as well as with other industrial companies and government agencies regularly employing engineers.

The long range employment outlook for engineers is dependent upon economic conditions. The Engineering Institute of Canada reports that there is still a constant demand for well qualified engineers and that 1963 will at least be as good a year for employment as 1962.

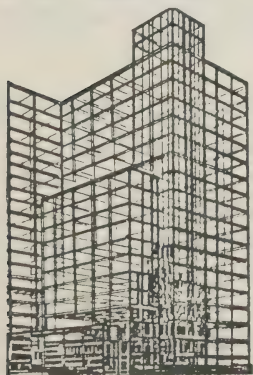
The Bachelor's degree in the recognized professional qualification in the engineering fields. However, a graduate degree is almost essential for those contemplating an academic career.

Chemical Engineering

There is expected to be a decrease of approximately 12 per cent in the number of graduates in chemical engineering in 1963, contrasted with the large 30 per cent increase in the number graduating in 1962. The Chemical Institute of Canada reports that the great majority of these graduates take positions at the Bachelor's level. Only a small percentage of these graduates proceed to graduate study. Employment among chemical engineers is almost entirely in Canada, with very few leaving the country to seek employment elsewhere.

Initial salaries for the new graduate have shown a modest increase over last year.

Civil Engineering



The 1963 graduating class of civil engineers is expected to be some 10 per cent smaller than that of 1962. This is a reversal of the trend observed last year, when there was a 10 per cent increase in graduates over the 1961 class.

The demand for well qualified civil engineers is sufficient to assure opportunities for those entering the employment market. Graduates may find employment with various construction firms, consulting firms, as well as in the federal, provincial and municipal governments. The Canadian Council of Professional Engineers states that a substantial number of civil engineers are employed in

industry other than the construction business. The power generating and distributing industry, the utilities field, the pulp and paper industry and the petroleum industry all employ civil engineers. Approximately 15 per cent of Canada's civil engineers are employed in the federal government, in the designing and construction of dams, harbour facilities, airports, highways, buildings and water and drainage works.

Starting salaries have shown a small increase and remain good for the new graduate.

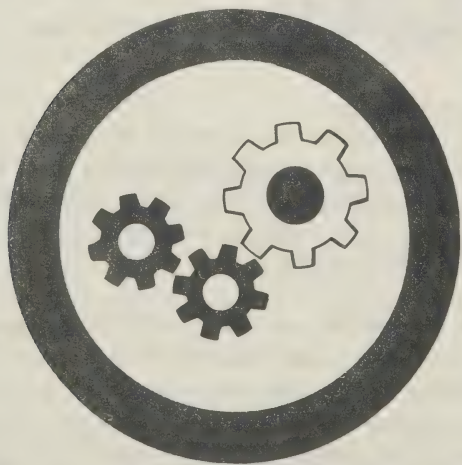
Electrical Engineering

A 10 per cent decrease is expected in the number of graduates in 1963, and this is a reversal of the trend observed last year when there was a comparatively large 20 per cent increase. Graduates should have little difficulty in finding suitable employment, as a constant demand for electrical engineers exists in electrical manufacturing and design, the electronic computing devices field, and in the various areas of communications.

It was reported in the journal of the Association of Professional Engineers of Ontario that one of the newer fields in which electrical engineers may find suitable careers is medical engineering. Medical engineering is used generally to describe the joint activities of medical scientists and engineering scientists, with special references to the application of technology and engineering concepts to medicine. The subject embraces such fields as medical electronics and certain aspects of bio-physics.

Starting salaries for the new graduate have shown an upward trend and are generally good.

Mechanical Engineering



A small three per cent increase in mechanical engineering graduates is expected in 1963, compared with the 17 per cent increases reported for 1962.

The demand for mechanical engineers continues to be high and graduates should be readily absorbed into the profession. Employment can be found in almost all major companies utilizing engineers, and in smaller firms of a local nature.

The Civil Service Commission reports that they hire a relatively small number of graduates in mechanical engineering each year. They are employed in the

design of mechanical building services such as heating, ventilating, plumbing and air conditioning, and in the testing and inspection of mechanical equipment.

Initial salaries for the graduate are increasing at a slightly faster rate than those in other engineering fields, and are amongst the highest reported.

HEALTH PROFESSIONS



Canada's rapid population expansion is only one of the many factors which are creating a steady demand for new graduates in all of the various health professions. Other important factors include a growing awareness of the need for proper health care and higher health standards, as well as the trend toward increased coverage under medical insurance plans.

The Canadian Podiatry Association reports that there is a critical shortage of practitioners. In Canada, there is only one podiatrist for every 132,000 people, while in the United States there is one for every 23,000. This Association is currently requesting governmental assistance in establishing Canada's first college of podiatry, preferably associated with one of the established universities.

The Canadian Psychiatric Association also reports a serious shortage of psychiatrists. At present, there is in Canada a ratio of one psychiatrist to every 18,000 people, compared to one for every 14,000 in the U.S.A. and one for every 15,000 in the United Kingdom.

A new field which shows some signs of development is medical engineering. Training in this field is generally at the graduate level, and usually involves preliminary study in engineering.

Dentistry

Opportunities for graduating dentists are excellent in almost all parts of the country. The Canadian Dental Association states that there is in Canada only one dentist to every 3,000 persons compared with one to 1,900 in the U.S.A. The more severe shortages of dentists exist in Newfoundland, New Brunswick and Saskatchewan.

Dentists are generally self employed. Those interested in securing salaried positions are restricted primarily to appointments with the health departments of federal, provincial and municipal governments.

The anticipated 1963 graduating class is expected to continue the trend observed in 1962 of an eight to 10 per cent increase in the number of graduates each year.

Medicine

Medical practitioners are needed almost everywhere to relieve shortages and to keep pace with rising demands for specialized medical services. The Canadian Medical Association reports that Canada would now be facing a drastic shortage of practitioners if some 3,500 doctors had not immigrated to Canada in the past decade. The Association further states that 1,400 doctors must be graduated by 1980 to meet the expected demands, and that more Canadian universities will have to add medical facilities if these requirements are to be met. Medical college deans estimate that they could handle only 1,150 freshmen with present facilities.

Specialists who have the qualifications of the Royal College of Physicians and Surgeons of Canada should have little difficulty in establishing themselves in urban communities or in obtaining employment with the Armed Forces, in industry, or in the academic or administrative fields.

The 1963 graduating class will be approximately the same size as that of the previous two years, with no discernible trend being noted.

Nursing



Although there is a progressive annual increase in the number of registered nurses in Canada, employment opportunities increasingly exist in all branches of nursing practice, e.g., public health and occupational health, as well as hospital nursing. The Canadian Nurses Association reports serious lack of personnel in rural areas and in mental hospitals. The mental hospital shortage is the more serious as there is only one nurse for every 58 psychiatric patients, compared with one nurse for every 2.8 patients in general hospitals. There is also an increasing demand for nurses qualified for teaching, research, administration and supervision.

Opportunities for study at the Master's level are now available in three Canadian university schools of nursing — the University of Western Ontario, McGill University, and the University of Ottawa. Nurses with advanced training are needed for senior positions in all fields of nursing and in research.

There is a continuing upward trend in salaries for registered nurses.

Pharmacy

The shortage of pharmacists in Canada will be aggravated further by the smaller 1963 graduating class; this is in contrast to the increase noted last year over the 1961 class. Employment prospects remain very good for the graduating pharmacist with starting salaries among the highest of all graduating fields.

The Canadian Pharmaceutical Association reports that eight colleges of pharmacy are currently established in Canadian universities with seven of these now having courses leading to a Master's degree. Commencing with the 1962-63 academic year a Doctor's degree program will be offered at three universities.

Pharmacy graduates usually find employment with retail drug outlets, the expanding field of hospital pharmacy, with the Armed Services and other federal agencies. In pharmaceutical manufacturing, good employment opportunities exist in executive capacities, production and research work, and in sales promotion and distribution.

Physiotherapy and Occupational Therapy

A dramatic increase of more than 50 per cent is expected in the number of B.Sc. (Physical and Occupational Therapy) graduates in 1963. In addition the number of 1963 diploma course graduates is expected to double from the 125 who made up the 1962 graduating class. The largest rise in the number of graduates in both the B.Sc. and diploma courses will occur at the University of Toronto. In Western Canada, the University of Alberta will be graduating its first class in the new three year program which recently replaced the two year diploma program.

The Canadian Association of Occupational Therapy and the Canadian Physiotherapy Association both report that the anticipated increases in the number of graduates will help alleviate the extreme shortages of qualified personnel. However, the present demands and the estimated annual loss of personnel, combined with the rapidly rising requirements of employers, will result in a need for even larger graduation classes during the years ahead.

Employment opportunities are plentiful in clinics, hospitals, government, the Armed Services, industry and social and welfare agencies.

Veterinary Science

Although the number of 1963 graduates in veterinary science is expected to be 25 per cent higher than that recorded in 1962, the supply of such personnel is not expected to meet the demand.

Graduates can find excellent opportunities in rural and urban practices where the shortages are more acutely felt. Suitable employment may also be found

as assistants in animal hospitals, in government agencies as meat inspectors or regulatory officers and as veterinary public health officers employed by municipalities.



HOUSEHOLD SCIENCE

Employment opportunities are excellent for the household science graduate. Graduates may find suitable employment in the food service field (restaurants, colleges, hospitals and other institutions), with governmental agencies, in the field of research, and in teaching at the university and secondary school levels. Those holding the certificate of the Canadian Dietetic Association continue to be in especially short supply and will find excellent employment opportunities. Either a period of internship or a three year period of successful experience is required for qualification as a member of the Association.

In view of the many openings available to the new graduate, there is no indication of current demands being filled since graduating classes each year are relatively small.

The Canadian Dietetic Association reports that in general, salaries are commensurate with experience and responsibility. Starting salary rates are good in larger establishments, but the smaller employers are not always competitive.

LAW



The increasing complexity of business and commercial problems during the past decade, combined with the large drop in the number of law graduates in 1961 and 1962, has produced a demand for new lawyers, and 1963 graduates should have little difficulty in becoming absorbed into the Canadian economy. In addition to private practice, employment may be found in commercial or corporation law with industrial and mercantile companies, as well as with governmental agencies and departments.

The trend noted during the last two years toward smaller graduating classes now appears to be reversing itself. It is expected that the 1963 graduating class will show an increase of five to ten per cent above that of 1962.

LIBRARY SCIENCE



Graduating librarians should have no difficulty finding employment in view of the continuation of the shortage of qualified librarians. There is a demand for general librarians, but the demand is even greater for those with special qualifications. Lately, with the increase in the amount of published scientific and technical material, greater attention is being given to the problems of cataloguing and classifying this complex subject matter. The most severe shortage of qualified librarians exists in children's and music departments, regional libraries, school libraries and in the field of cataloguing.

The standard set by the Canadian Library Association calls for one professional librarian for every 500 pupils. In reality, there is one for every 3,392 pupils, while 34 per cent of Canada's university libraries are considered to be inadequately staffed. In describing the shortage, Miss Ruby Wallace, president-elect of the Canadian Library Association points out that there are two vacant positions in the public libraries for each of the 850 professionally qualified librarians employed in this field. At the public schools there is a need for 3,390 librarians, contrasted with 125 actually employed.

A Bachelor's degree in either arts or science, plus one full year of library training leading to a B.L.S. at a library school, is the basic qualification for professional librarianship. Five schools now offer graduate training leading to degrees in library science. These are the University of Toronto, McGill University, the University of Ottawa, the University of Montreal, and the University of British Columbia. In some cases, provincial certification is also required.

Starting salaries continue to show an upward trend and the Canadian Library Association at its 1961 convention accepted a resolution recommending a starting salary of \$5,200. Public libraries are expected to accept this schedule for graduates with a B.A. degree and a B.L.S. from an accredited library school.

MINERAL SCIENCES AND MINERAL ENGINEERING

There will be a drop of close to 30 per cent in the total number of graduates in the combined mineral science and mineral engineering fields, with the largest decrease expected in the field of geophysics and geophysical engineering. The education committee of The Canadian Institute of Mining and Metallurgy forecasts a decreasing number of graduates in mining, geological, geophysical and petroleum engineering at the Bachelor level in the next two to three years. However, more graduates at the Master's level are predicted in mining and petroleum engineering during the same period.

There have been indications of a renewed demand for graduates this year, and those entering the employment market should readily find suitable career opportunities. Starting salaries for graduates in these disciplines are the highest in the engineering field.

Geology and Geological Engineering

There will be a drop in the number of graduates in both honours geology and geological engineering. Although the apparent trend of a decreasing number of graduates shows some signs of reversal, the drop might be partially attributed to the fact that a graduate degree is virtually a necessity for the better positions in this field. Approximately 50 per cent of Canadian geologists now possess higher degrees.

Graduates with either a M.Sc. or Ph.D. should experience little difficulty in finding employment, while those with Bachelor's degrees will find that their employment opportunities are strongly influenced by economic developments.

Starting salaries show a slight increase from the previous year, but are among the highest initial salaries offered to the 1963 graduate.

Geophysics and Geophysical Engineering

The universities of Toronto and Saskatchewan, the two institutions reporting graduates in geophysical engineering, expect to graduate a total of 10 students in 1963, one-third fewer than were graduated from three universities in 1962. In addition, six graduates are expected in honours geophysics (or honours physics and geology) from four universities, one-half the number graduated in 1962.

There are many employment opportunities in geophysics. However, advanced degrees are generally needed for the more senior positions. Most employment opportunities are with governmental agencies, while the Canadian Institute of Mining and Metallurgy advises that the recruitment by the major oil companies is substantially less than in recent years.

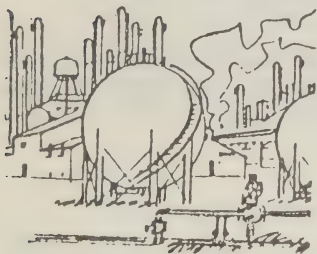
Mining and Metallurgical Engineering

The number of graduates in 1963 in both mining and metallurgical engineering is expected to remain at approximately the same level as in 1962.

This year's graduates in mining engineering should have little difficulty in finding employment as the demand for graduates has increased over the previous year. The Canadian Institute of Mining and Metallurgy reports that the demand for graduates in metallurgical engineering has also shown an increase, and there is not expected to be enough graduates to meet this year's demand.

Starting salaries for mining engineers remain the highest in the engineering field, while there are excellent starting salaries in both fields for those with graduate training.

Petroleum Engineering



The number of 1963 graduates in petroleum engineering is expected to remain at approximately the same level as last year, which was less than half the number of graduates in 1961. The University of Alberta and the University of Saskatchewan continue to be the two universities giving formal education in this field. It was reported to the Association of Professional Engineers of Alberta that, effective in the fall of 1962, the B.Sc. degree in petroleum engineering

is to be discontinued at the University of Alberta. However, two courses in petroleum reservoir mechanics are being offered to students in senior years of chemical and mechanical engineering, to enable them to be better prepared for careers in petroleum engineering. The graduate program leading to the M.Sc. degree is being continued, and will be modified to allow graduates from other branches of engineering to register for graduate work in petroleum engineering.

Graduates should experience little difficulty in finding employment, as the demand for qualified people continues. The oil industry in western Canada offers the best opportunities in exploration and development.

Starting salaries are the highest reported for engineering where there is a significant number of graduates; mining engineering is the only field paying a higher initial salary.

PHYSICAL SCIENCES

There will once again be an increase in the number of physical science graduates in 1963. This increase is expected to be about 15 per cent over the previous year's total. Honours chemistry, mathematics and physics report the most dramatic gains, while such fields as geography and engineering physics are expected to have smaller graduating classes than in 1962.

The continued growth of industry, the increasing complexity of technology and the rapidly expanding research fields have created a critical need for those with professional training in an ever-widening variety of technical and scientific specialties. Full professional qualifications for a scientist generally involve the possession of a Ph.D. degree. However, there are excellent employment opportunities open to those holding a Master's degree and honours graduates at the

Bachelor level seldom have difficulty in securing work. Approximately 20 per cent off all scientific and technical professionals currently employed in Canada now have at least one graduate degree.

Indicative of the current world-wide need for professionally qualified personnel is the American estimate made by the National Aeronautics and Space Administration. NASA predicts a 70 per cent increase in the number of scientists required by 1970, particularly physicists and mathematicians.

Starting salaries for honours graduates in the physical sciences have shown a slight increase over the previous year and remain good, while salaries for those with graduate degrees are among the highest reported.

Chemistry



There will be a 40 per cent increase in the number of honours chemists graduating in 1963, resulting primarily from the dramatic rise in the number of expected graduates from the Ontario Agricultural College and from Laval University. This is a sharp reversal of the trend noted last year, when there was a 30 per cent drop in the number of graduates.

The Chemical Institute of Canada reports that almost 70 per cent of the graduates in honours chemistry now proceed to graduate study. This trend appears to be increasing, so much so that the Bachelor's degree in honours chemistry is becoming simply the first step on the road to the Ph.D. degree. There is, however, a steady demand in some types of industry for graduates at the Bachelor's level. Since so few honours graduates are available, these positions are generally filled by pass graduates with a strong major in chemistry. Approximately 40 per cent of the chemists in Canada have some graduate training, with one-half of these possessing a Ph.D. degree.

There will be a relatively steady demand for chemists in the coming years. Tax provisions regarding research expenditures announced by the Federal Government should encourage both Canadian companies and Canadian subsidiaries of United States companies to do more research work. This should also help stem the flow of Ph.D. chemists to foreign countries.

Mathematics

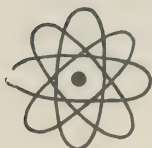
The employment outlook for graduates in mathematics is good at all levels of training, and excellent for those with a Ph.D. degree. The current strong demand for mathematicians can be partially attributed to the increased demand for chemists and physicists, since mathematics is fundamental in all sciences, particularly the physical sciences.

Graduates with a major in mathematics and statistics are now being employed to work with computers in the electronic processing of accounting and business information. The shortage of mathematicians is expected to continue in the foreseeable future because of the rapid development in research and the increasing use of electronic computers.

The majority of mathematicians are engaged in teaching, with approximately two-thirds of these employed at the secondary school level and the remainder at universities. Many new mathematics teachers will be needed in the coming years to provide for the larger enrolments and to meet the demand for advanced training in the science and engineering fields.

There is expected to be a 22 per cent rise in the number of graduates in 1963.

Physics



Physics is one of the fastest growing professional fields, and the demand for graduates is strong. Opportunities are plentiful for the well qualified physicist, especially in the new areas such as space physics, solid state physics, and nuclear and high energy physics.

A Bachelor's degree with a major in physics is the minimum requirement, but graduate study is almost a necessity for advancement in the profession. Almost two-thirds of the physicists in Canada have graduate degrees.

Physics includes the fields of astronomy and meteorology. Federal government agencies are the major employers of graduates specializing in these fields. Honours graduates in physics or engineering physics may be employed by the Meteorological Service of Canada but they are generally required to study for their Master's degree while on the job.

Approximately 50 per cent of the physicists are employed in government research, while one-third are employed in the education field. Industry as yet does not employ a significant number of physicists.

A 25 per cent increase is anticipated in the number of physics graduates in 1963. However, there will be a 20 per cent decrease in the number of engineering physics graduates.

SOCIAL WORK



There is an acute shortage of social workers in Canada. The Federal Department of Labour reports that the increasing trend toward more social security legislation, the greater recognition of the need for trained workers, and the continual pressure to improve welfare standards have all contributed to this shortage.

Despite the fact that many non-professionals have been recruited, it is estimated that there are in Canada now close to 2,000 vacant positions.

Graduates with either a B.S.W. or M.S.W. degree should have no difficulty in finding employment. The major areas of employment exist in public and private welfare services, and in the fields of medical and psychiatric social work and child welfare. For the professionally qualified, there are ample employment opportunities with good remuneration.

THE NES STUDENT PLACEMENT SERVICE

A university, or any other institution of higher education, has a basic or primary responsibility in the placement field. This responsibility can be described as one of ensuring that both students and employers have adequate placement facilities and services at their disposal. At the very small institution nominal facilities and services are sufficient, but the requirements for an efficient placement service can become quite extensive when enrolments are large.

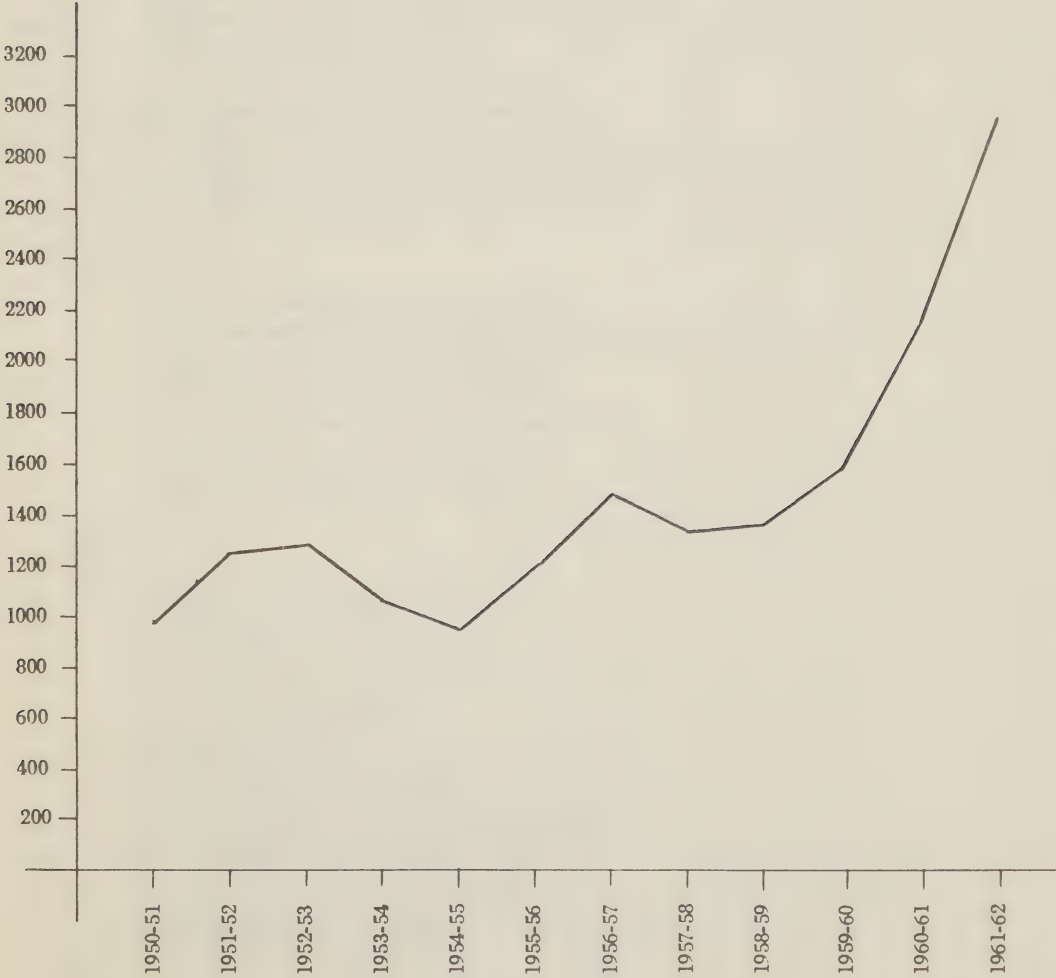
During the first stage of development the operation of a placement service entails little work and can be assigned as an extra responsibility to a person holding a position outside the placement field. As enrolments grow, however, a point is finally reached when staff are required specifically for placement duties. At this point the NES is frequently asked to assume the functional or operational role in the field of placement for the institution concerned. The university provides space on campus while the NES provides the staff and furnishings.

Arrangements of this nature now exist at 14 universities and colleges, and it can be expected that arrangements will be made at other points as enrolments continue to grow. The role of the NES in the placement of university students is oriented primarily to the graduating or graduate students seeking

permanent employment. More than 6,000 of these students registered with the NES during the 1961-62 academic year. Approximately 3,000 were placed in permanent employment, while others took summer jobs before returning for further studies. In addition, assistance is given to undergraduate students in finding summer employment and to all students in finding part-time work during the academic year.

An indication of the progress being made by the National Employment Service in placing graduate and graduating students is shown by the following graph. During the 11 years covered by this graph it will be seen that NES placements increased from about 900 to 3,000.

**Graduating and Graduate Students
Placed in Permanent Employment by Academic Years**



NES Student Placement Officers personally interview those students using the placement service, to assess individual abilities and interests. Following this assessment a student can then be referred to the appropriate employers. Students are referred directly to local employers and by the most convenient means available to other employers. Appointments can be made for employers' representatives, visiting the campus in search of promising employees, to interview suitable students at specified dates and times.



INSTITUTIONS OF HIGHER EDUCATION

Note: The NES operates a full-time placement service on the campus of each of the undernoted institutions marked with an asterisk. A placement service is provided to the remaining institutions, as well as others, from the nearest NES office, except as otherwise indicated.

Newfoundland

*Memorial University of Newfoundland, St. John's

Prince Edward Island

Prince of Wales College, Charlottetown
St. Dunstan's University, Charlottetown

Nova Scotia

Acadia University, Wolfville
Collège Sainte-Anne, Church Point
*Dalhousie University, Halifax
Mount Saint Vincent College, Halifax
Nova Scotia Agricultural College, Truro
Nova Scotia Technical College, Halifax
Saint Francis Xavier University, Antigonish
Saint Mary's University, Halifax

New Brunswick

Mount Allison University, Sackville
New Brunswick Technical Institute, Moncton
Saint Thomas University, Chatham
Université du Sacré-Coeur, Bathurst
University of New Brunswick, Fredericton
Université Saint-Louis, Edmundston
Université Saint-Joseph, Moncton

Québec

- 1 Bishop's University, Lennoxville
Collège Jean-de-Brébeuf, Montréal
Collège Sainte-Marie, Montréal
Ecole des Beaux-Arts, Montréal
*Loyola College, Montreal
- 2 Macdonald College, Ste-Anne-de-Bellevue
- 3 McGill University, Montreal
Montreal Institute of Technology, Montreal
*Sir George Williams University, Montreal
*Université de Montréal, Montréal
*Université de Sherbrooke, Sherbrooke
*Université Laval, Québec

Ontario

Assumption University of Windsor, Windsor
Carleton University, Ottawa
Lakehead College of Arts, Science and Technology, Port Arthur
Laurentian University of Sudbury, Sudbury
McMaster University, Hamilton
Ontario Agricultural College, Guelph
Ontario Veterinary College, Guelph
Osgoode Hall Law School, Toronto
Queen's University at Kingston, Kingston
Royal Military College of Canada, Kingston
Ryerson Institute of Technology, Toronto
*Université d'Ottawa, Ottawa
University of Toronto, Toronto
University of Waterloo, Waterloo
University of Western Ontario, London
Waterloo University College, Waterloo
York University, Toronto

Manitoba

Brandon College, Brandon
4 United College, Winnipeg
*University of Manitoba, Fort Garry, Winnipeg

Saskatchewan

*University of Saskatchewan, Saskatoon
University of Saskatchewan, Regina Campus, Regina

Alberta

Mount Royal College, Calgary
*Southern Alberta Institute of Technology, Calgary
*University of Alberta, Edmonton
*University of Alberta in Calgary, Calgary

British Columbia

Notre Dame University College, Nelson
University of British Columbia, Vancouver
*Victoria College, Victoria

- 1 Placement service handled by NES officer at Université de Sherbrooke
- 2 Placement service handled by NES officer at McGill University
- 3 The NES officer at McGill University works in conjunction with the McGill Placement Service
- 4 Placement service handled by NES officers at the University of Manitoba

Government
Publications

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1962

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~~8058~~ ment Service
~~6245~~ Supply and demand; uni-
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